WHAT IS CLAIMED IS:

1. A method of processing observed data, comprising steps of:

receiving a first signal coming from a medium for a predetermined time period as a first data set;

receiving a second signal coming from the medium for the predetermined time period as a second data set;

plotting the first data set and the second data set on a two-dimensional orthogonal coordinate system; and

rotating the first data set and the second data set plotted on the coordinate system by a rotating matrix to separate a signal component and a noise component contained in the observed data.

2. The signal processing method as set forth in claim 1, further comprising a step of subjecting the signal component to a frequency analysis to determine a fundamental frequency of the signal component.

3. A signal processor, in which the signal processing method as set forth in claim 1 is executed.

4. A pulse photometer adapted to observe a pulse wave of a living body, comprising

a light emitter, adapted to irradiate the living body with a first light beam having a first wavelength and a second light beam having a second wavelength which is different from the first wavelength;

a converter, operable to convert the first light beam and the second light beam, which have been reflected or transmitted from the living body, into a first data set corresponding to the first wavelength and a second data set corresponding to the second wavelength; and

a processor, operable to process the first data set and the second data set with a rotating matrix to separate a signal component and a noise component contained in the pulse wave.

5. The pulse photometer as set forth in claim 4, wherein:

the processor is operable to plot the first data set and the second data set on a two-dimensional orthogonal coordinate system constituted by a first axis corresponding to the first data set and a second axis corresponding to the second data set; and

the first data set and the second data set plotted on the coordinate system are to be rotated by the rotating matrix.

6. The pulse photometer as set forth in claim 4, wherein the first data set and the second data set are obtained for a predetermined time period consecutively.

7. The pulse photometer as set forth in claim 5, wherein a rotating angle of the rotating matrix is determined such that a distribution range of the first data set and the second data set which are projected on one of the first axis and the second axis is minimized.

8. A pulse photometer, comprising

a light emitter, adapted to irradiate a living body with a first light beam having a first wavelength and a second light beam having a second wavelength which is different from the first wavelength;

a converter, operable to convert the first light beam and the second light beam, which have been reflected or transmitted from the living body, into a first data set corresponding to the first wavelength and a second data set corresponding to the second wavelength; and

a processor, operable to:

plot the first data set and the second data set on a two-dimensional orthogonal coordinate system corresponding to the first wavelength and the second wavelength;

calculate a first norm value for the first data set and a second norm value for the second data set to obtain a norm ratio of the first norm value and the second norm value; and

obtain a concentration of at least one light-absorbing material in blood of the living body, based on the norm ratio.

9. The pulse photometer as set forth in claim 8, wherein the concentration of the light-absorbing material is at least one of an oxygen saturation in arterial blood, a concentration of abnormal hemoglobin in arterial blood, and a concentration of injected dye in arterial blood.

10. The pulse photometer as set forth in claim 4, wherein the processor is operable to:

subject the signal component to a frequency analysis to determine at least one of a fundamental frequency of the pulse wave and a pulse rate of the living body; and

obtain a concentration of at least one light-absorbing material in blood of the living body, based on at least one of the fundamental frequency and the pulse rate.

11. The pulse photometer as set forth in claim 10, wherein the concentration of the light-absorbing material is at least one of an oxygen saturation in arterial blood, a concentration of abnormal hemoglobin in arterial blood, and a concentration of injected dye in arterial blood.